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ABSTRACT

The developmental phase of a program to train graduate teaching assistants (GTA's) attempted to identify the training requirements of GTA's and to experiment with a variety of training instruments and procedures. Volunteer GTA's (30) from nine different college departments participated in the 10-week program during which each GTA conducted his regularly assigned class in the Experimental Classroom Facility where each lesson was videotaped. After each class, the GTA viewed the tape, selected short segments illustrating classroom events of interest to him, and met regularly with five other GTA's and a training leader (acting as a resource person) to view and discuss the instructional problems in the selected videotape segments. Two other feedback methods were available to the GTA: Post Class Questionnaires from students and videotaped Student Debriefings during which four or five of his students discussed class videotapes with a member of the training staff. GTA's generally endorsed the program ranking skill improvement above information acquisition or attitude change. Four key principles characterize the procedures ultimately developed: (1) Exercise the classroom system as a whole; (2) Structure a learning environment in which participants can generate their own goals and determine their own conditions of practice; (3) Maximize objective feedback; (4) Provide the opportunity to analyze feedback in a nonthreatening group setting. (JS)

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DEVELOPING A SYSTEM TRAINING PROGRAM FOR GRADUATE TEACHING ASSISTANTS

February 1970

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A System Training Program for Graduate Teaching Assistants

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INTRODUCTION

College teaching is the only major professional career in the United States for which there are few standardized training programs and no certification requirements. A recent comprehensive survey of 136 graduate academic departments and professional schools revealed that only 35 offer formal courses or seminars in college teaching. (1) Yet, even these numbers are misleading since many such courses tend to focus on routine departmental administrative policies and practices such as taking attendance and grading. Few are designed to develop the skills of instruction or to impart information about principles of learning.

In most institutions the teaching assistant is expected to develop his instructional skills under supervision and guidance. However, recent studies (1, 2,3) report that adequate, systematic, or continuous guidance from a senior member of the faculty is usually not available. Riesman and Jencks observe that "there are hardly any graduate schools that make a serious effort to induct graduate students into teaching, in contrast with throwing them as underpaid auxiliaries into large introductory classes to sink or swim, haze or be hazed" (4) and Wise concludes that in this regard,"the graduate schools have substantially failed their responsibilities." (5) Yet in a recent study, about one-half of all graduate assistants said that they would like to have some training in college teaching. (6)

The implications of these studies are obvious: the graduate student is generally ill-prepared to enter the college classroom. The senior faculty suspect it, the students know it, and the graduate teaching assistants (GTA's) themselves know it.

The ultimate responsibility for training teaching assistants rests with individual academic departments. However, the development and maintenance of a systematic training program is usually assigned a low priority. There are several reasons for this. First, in order to achieve a viable program, a large amount of time and effort must be expended on the development of training, evaluation and supervisory procedures. Second, most departments view as their primary function the training of discipline specialists rather than college teachers. Third, faculty members seldom have the time or inclination to acquire sufficient expertise in the psychology of learning and the technology of instruction to develop and conduct an adequate training program.

An additional problem in providing graduate assistants with adequate preparation for college teaching is that the few relevant courses available are offered by colleges of education and they have not been generally acceptable to non-education majors. Such courses have not been able to attract graduate students from other disciplines because of the traditional suspicion of conventional "teaching methods." Departments appear reluctant to commit a graduate student's limited time to any activity which, they believe, contributes only marginally to research or academic objectives.

These considerations imply several necessary conditions for the development of an effective training program for teaching assistants. Such a program must be:

1. Acceptable to faculty and students.
2. Applicable to different academic disciplines.
3. Backed by the central administration.
4. Economical of faculty and student time.

In July of 1968, the Learning Service at Michigan State University, supported by a grant from the ESSO Education Foundation began to develop a training program for graduate teaching assistants that would satisfy the conditions previously stated. The overall goal of the project was to produce a program that could be adapted to the requirements of the several academic departments at MSU and conducted by departmental personnel.

The developmental phase of the program which was completed in the Fall of 1969 was frankly exploratory, devoted to identifying the training requirements of teaching assistants and experimenting with a variety of training instruments and procedures.

From the onset we recognized that there were many unanswered questions about the training needs of GTA's. Indeed, some of the questions had not even been explicitly formulated. How do teaching assistants differ in their training requirements from one another? What kinds of learning objectives can be attained in a training period of one ten-week academic term? What kinds of teaching problems concern GTA's most? What kinds of teaching skills do the GTA's want to develop? Will one training program serve the needs of all departments or must several programs be developed?

Four successive groups of teaching assistants, a total of 24, participated in the developmental phase of the training program. This is a report of our findings, the procedures that worked, the insights achieved, and the impressions and hunches derived from our first year's work.

THE TRAINING PROGRAM

The overall plan was based on the following assumptions:

First, effective teaching is a complex skill that can be improved by providing guided practice and knowledge of results.

Second, previous research suggests that there is no one "correct" way to teach. Therefore, the trainee should be provided with an opportunity to experiment with alternative instructional techniques so that he may discover those that work best for him and thus, develop his own individual style of teaching.

Third, an instructor will be able to teach better if he is familiar with the research literature dealing with learning, motivation, organization and presentation of subject matter, individual differences in learning abilities, group dynamics, and other materials related to classroom instruction.

These three assumptions guided the development of the training program.

Training Objectives

The objectives of the developmental phase of the program were:

1. To provide the training staff with first-hand, direct, observational experience with a variety of discussion classes. Accordingly, courses from several different departments and colleges were included in the first phase of the program. This helped determine the degree of communality of training problems in different subject matter areas with different GTA's.
2. To determine the kinds of teaching skills that might be learned in a ten-week period. Differences were anticipated among GTA's in the degree and rate of learning because of such factors as previous teaching experience, amount of graduate study, and attitudes toward teaching and research. A GTA's prior experience with the course being taught and his graduate level would determine to a large extent his familiarity with the subject matter and consequently the amount of time he could afford to devote to instructional improvement.

3. To examine training procedures that might ultimately be incorporated into a self-contained internship program. In order to be self-contained, a training program should require minimal consulting services by professional or expert trainers, should be administrable within the framework of academic departments, and should be conductable by the trainees themselves.
4. To determine the degree of acceptance of the program by students, GTA's, and academic departments. A related concern was the effect of an increased load upon GTA's. It was also important to find out what effect observational and data gathering procedures would have on GTA's and students.
5. To determine the value of various performance feedback instruments and procedures.

Recruitment

All participants were volunteers. They were recruited from departments in the following manner. First, the Deans, Department Chairmen, and Course Supervisors of prospective departments were briefed on the objectives of the program and the methods to be employed. Specifically, approval was sought on the principle that all performance data obtained during the training program would not be made available to anyone but the GTA's and the training staff.

The second step in the recruitment of GTA's was to brief prospective candidates on the details of the training procedures. It was emphasized that they were to function in two roles: as trainees and developers. As trainees they were to assume the primary responsibility for their own learning, identifying the skills they wished to attain and practice to improve them. It was made

clear that the training staff would be available to assist and guide them and to provide performance feedback information.

As developers, they were expected to suggest modifications to the training aids and procedures or generate new ones. Most of the graduate teaching assistants were intrigued by the proffered opportunity to exert some control over their own learning and we had no difficulty obtaining volunteers.

The Participants

Thirty GTA's participated in the training program, recruited from the following departments: Psychology, Sociology, Political Science, French, German, Spanish, Mathematics, Statisitcs, and Geography. During training, each GTA was responsible for teaching a course in his department.

All but four of the participants were male. All were working toward a Ph. D. Degree; 17 were M.S.'s or M.A.'s. As a group, they had from one to four years of experience in graduate school and their previous college teaching experience ranged from less than one year to more than two years. Thirteen of the thirty had taught the same course previously. These data are summarized in Table I.

Table I

SUMMARY OF BIOGRAPHICAL INFORMATION OF TRAINING PROGRAM PARTICIPANTS

N=30

		Had prev. ed. psych. or educ. courses	Highest Degree		College Teaching Experience (yrs.)			Taught same course previously	Yrs. in Grad. School			
M	F		BA	MA	1	1-2	2		1	2	3	4
26	4	13	13	17	11	10	9	14	8	7	12	3

Perceived Problems

At their first meeting with the training staff, GTA's were asked to fill out an instructional problem checklist. Problem checklist data were summarized and returned to participants at the next meeting. These summaries identified common problems and assisted GTA's in specifying their initial training objectives. The summaries also served as a springboard for a discussion of their expectations regarding the program.

Despite their varied backgrounds and experience, GTA's tended to check similar problems. Such problems included: students who are afraid to speak in class or who do not participate in discussions, the wide differences in ability among the students in their class, students who express a negative attitude toward the subject matter or who criticize other instructors, students who memorize instead of trying to understand principles, and the difficulty GTA's had assessing their teaching effectiveness. Of special interest is the fact that not one of the participants indicated that any of their problems arose from their lack of interest in teaching.

During the training program teaching assistants generally chose to develop skills that would alleviate problems they had previously identified. The following table summarizes these skill areas and lists the average number of problems checked by teaching assistants in each of them.

Table II

AVERAGE NUMBER OF PROBLEMS CHECKED IN VARIOUS SKILL CATEGORIES

Skill Category	Average Number Checked
Organizing subject matter	2.8
Classroom management	8.3
Establishing a facilitative class atmosphere	3.5
Evaluating student learning or own instruction	1.3
Providing a model of professional behavior	2.7

The category labeled "organizing subject matter" refers to writing and sequencing learning objectives. Classroom management includes such skills as presenting advanced organizers in class, assessing student entry skills, and asking questions. Class atmosphere refers to the avoidance of punitive or threatening practices, ridiculing students, reinforcing participative behavior, and giving recognition to original or thoughtful contributions. Providing a model of professional behavior includes such widely diverse behavior as preparing adequately for class, being on time, using personal illustrations of problem solving, and not trying to bluff an answer to a difficult question posed by a student.

Training Procedures

The duration of the training program was one academic term of ten weeks. A training group consisted of six GTA's. Three of the groups were composed of GTA's from different departments; two, from the same department. The training staff was composed of a training leader and four graduate research assistants.

The training program was conducted in the Experimental Classroom Facility (ECF), a laboratory designed for research in instructional systems. The ECF measured 16 x 25 feet and could comfortably accommodate up to 25 students. Many seating arrangements were possible at the request of the GTA.

An observation room, adjacent to the classroom, was separated from it by one-way-vision glass. Two television cameras and several microphones in the classroom provided extensive observational access. A television monitor in the classroom provided the capability of showing video tape recordings and other television programs.

Throughout the term each GTA conducted his regularly assigned class in the ECF. These classes were recorded on video tape. At the end of each class

session, or shortly thereafter, the GTA viewed the video tape of his own class session and selected short segments illustrating classroom events of interest to him. The segments chosen by all of the GTA's were collected on a single tape and shown at a debriefing held at the end of the week. Only the GTA's and the training leader attended these debriefings. The purpose of these debriefings was to allow participants to view and discuss as a group the instructional problems illustrated in the selected video tape segments.

In the debriefing each GTA in turn was responsible for leading that part of the discussion relating to his own tape segments. Before playing his tape, he stated why he had chosen each one and how they related to his training objectives for the week. After viewing his tape segments, all members of the group assisted him to identify and classify his instructional problems, to generate hypotheses regarding his underlying causes, and to suggest changes in behavior that might alleviate problems. In subsequent class sessions, GTA's attempted to implement the behavioral changes specified. The outcome was viewed and discussed at the next debriefing.

In the debriefing, the training leader acted as a resource person. His function was to establish and maintain an atmosphere of trust among the participants, to guide the analysis of instructional problems, pointing out relevant learning principles, and to suggest how such principles could be applied to instructional practices.

By experience, the training leader learned not to impose a lecture that was not based upon a perceived need of the GTA's. Unless such a need was generated by objective evidence of his performance in class, it was generally ignored. On the other hand, the training leader could easily introduce concepts and principles of learning and instruction if they represented a solution to a

perceived need of the GTA. At that time, such offerings were generally accepted and incorporated by the GTA as a training objective he set for himself.

For example, one GTA was concerned about his inability to generate student discussion. Even after carefully preparing a set of provocative questions, he found that few students would volunteer an answer. At this point the training leader pointed out that the GTA never waited for a response but merely answered the question himself. This usually generated a discussion in which it was agreed that most GTA's abhored any periods of silence in the classroom and were quite anxious about being asked a question they couldn't answer. This generally lead further to discussion of why some students may be afraid to speak in class and how they could be encouraged to do so. At this point, the GTA's were receptive to a presentation of operant and classical conditioning principles and the techniques of behavioral contingency management.

The debriefing was often used as a model of a discussion class in which, through use of role-reversal procedures, the training leader was able to illustrate and demonstrate the effects of numerous teaching practices. For example, by intentionally interrupting a GTA or deprecating his contribution, he could make dramatically apparent the effect such behavior would have on students in his class.

Besides video tape recordings, two other methods of acquiring information about his performance were available to the GTA: the Post Class Questionnaire (PCQ) and the Student Debriefing.

The Post Class Questionnaire was used to obtain immediate feedback from students about the effect of the GTA's behavior. A pool of questions was available and, at the debriefing, the GTA selected those which were pertinent to his training goals. For example, one GTA was practicing writing learning

objectives for his students in order to guide their learning. He chose the following true-false questions for the PCQ:

1. I had difficulty following the discussion today.
2. Today's session gave me a clearer understanding of the concepts previously covered.
3. I knew where we were going today.
4. The instructor clearly indicated the important points to be learned.
5. I understood how the material covered in class today related to material covered previously.

The PCQ's were distributed at the end of the class period and were answered anonymously by the students. A summary of student responses was prepared for the GTA by the training staff for the next debriefing.

Each Post Class Questionnaire included an "open question." The GTA could use this to obtain student responses to a question that occurred to him during the class period. For example, during the class period he might have become aware of the fact that most of the discussion was between himself and one or two students. At the end of the class, using the open question, he might ask students to indicate whether or not they felt free to participate in the disucssion.

The Post Class Questionnaire provided information about student reactions that could be obtained in no other way. One GTA modified the PCQ in an insightful way that was subsequently added as one of the techniques of the program. Instead of asking his students to answer prepared questions, he asked them to suggest questions for inclusion in subsequent Post Class Questionnaires. The responses he received brought to his attention several aspects of his classroom behavior of which he had not been aware.

A second method that GTA's could use to acquire information from students was the student debriefing which was conducted in the following way. The GTA requested four or five students to help him analyze his teaching. The volunteers

met at a predetermined time, outside of class hours, with one of the research assistants from the training staff. They were shown a video tape recording of the previous class session and were asked to comment on it. The students' discussion was recorded on video tape and, with the consent of the students, was viewed by the GTA at a later time. After viewing the recording of the student debriefing, the GTA could choose whether or not he would show it at the GTA debriefing later in the week. These student discussions were remarkably forthright and informative. They provided GTA's with evidence of a degree of student responsibility and maturity which few had anticipated.

Each time the training program was conducted the training procedures were modified and improved. Both the GTA's and the training staff learned to adopt a problem-solving attitude toward the instructional process, looking for areas in which improvement could be made, testing new ideas, and actively seeking confirmatory feedback.

RESULTS

The development of the training program occurred in two phases. The objectives of the first phase were to explore a variety of methods for providing feedback to GTA's and to determine the attitudes of GTA's and their students toward the program. The second phase of the program consisted of a formal test of the aids and procedures developed in the first phase. The attitudes and opinions of the participants toward the program are included in this report; test data will be included at a later date in a more complete report.

Attitudes of GTA's

During the week after the academic term ended, the GTA's were asked to write an essay summarizing their perceptions of the program. Thereafter, they were interviewed singly by the training leaders and were then asked to complete a

questionnaire. These three procedures were designed to derive answers to the following types of questions:

1. What is your general attitude toward the program?
2. What, specifically, have you learned about teaching and about yourself?
3. What is your opinion of the video tape recording procedure?
4. What is your opinion of the debriefings?
5. Has your attitude toward teaching changed?
6. Should your department adopt this training program?

The answers to these questions are presented below as responses t e questionnaires and as quotations, extracted from the essays and inte s, that appear to reflect important attitudes or feelings about the program.

I. What is your general attitude toward the training program?

Graduate teaching assistants entered the program with different training needs and requirements. They all stated that the procedures developed helped to meet their needs. Without exception, they reported an increased awareness of the complexities of the instructional process and the difficulties involved in modifying their own teaching behavior. Table III and the following quotations support these conclusions.

Table III

GTA Rating of Training Program	Percent Responding		
	SA & A	N	D & SD
1. I learned some new teaching skills.	94	6	0
2. I am more favorably disposed to teaching as a result of the program.	71	18	11
3. I could have put the same amount of time to better use in preparing for my profession.	18	6	76
4. Debriefings with peers should be eliminated.	0	0	100
5. Video tape is a valuable and useful feature.	100	0	0

Quotations

"Maybe it's because I'm a mathematician; but I felt that there should be a more efficient way of getting what you want. Maybe in education or psychology the results don't come as quickly. You have to work so hard to come up with one or two points. When you think back on it it seemed to make a lot of common sense and it seemed reasonable to begin with but it takes so long to bring them out in the open."

"So it depends if a person is going to work just with the high level courses, where the students are going to learn the material; then he probably wouldn't have to go through a course like this. But I think it would be a good idea for the people who are going to teach the more elementary courses and most people do one time or another."

"My reactions to the program is that it was just plain fantastic. It's geared to help the developing or aspiring teacher to become an effective one, through much of his own efforts, and therein lies its value. Not only can you come away from this program feeling that you've become aware of what effectiveness in the classroom is; but you can walk away knowing that it was a reality arrived at through your work. This is a real vital discovery, one which even transcends the program. Just think if we could equip all future aspiring teachers with even part of this experience. The recordings, tapes, discussions, etc., all seemed very relevant in light of our ultimate achievement."

"They (teaching assistants) should not enter the program during their first term of teaching nor during a term when they are teaching a specific course for the first time. A graduate assistant must be able to spend time concentrating on his techniques and should not have the extra complications of teaching a course for the first time."

"I also really doubt that one quarter is enough to accomplish everything that could be accomplished. I really don't feel that we scratched the surface on a lot of topics that are of value."

"In conclusion, I think the program of definite worth. Something such as this is much needed at the graduate level, by academic departments which eschew (and I think rightly so) the methods of education which, 'capitalized,' have become a department in themselves."

II. What specific things have you learned about teaching?

GTA's were asked to evaluate the importance of program outcomes. Although there were differences among individuals, most GTA's ranked skill improvement above information acquired or attitudes changed. The average ranks assigned by 17 GTA's to various program outcomes are shown in Table IV.

Table IV

The most important things I've learned in the Training Program for Graduate Teaching Assistants are:	Average Rank
1. A greater sensitivity to students, e.g., interpreting non-verbal behavior.	3
2. How to organize a course better, e.g., stating objectives behaviorally.	1
3. More favorable attitudes toward teaching.	8
4. Teaching techniques, e.g., how to ask questions, reinforcing behavior, etc.	2
5. New insights about the teacher's role in the classroom.	7
6. How to recognize teaching problems.	4
7. Some of my weaknesses as a teacher.	5
8. Some of my strengths as a teacher.	6

In their terminal essays and interviews the GTA's tended to stress the importance of an increased sensitivity to behavior in the classroom and awareness of the complexities of student-teacher interaction. These points of view are elaborated in the following quotations.

Quotations

> "I feel that I've learned a multitude of things which apply to both my professional and personal life. The former is what I shall address. Briefly stated, I've learned how to teach effectively. Not that I've arrived completely, but I think I have a near-total or total awareness of what has to be done."

"Becoming more aware of the student's role in the art of teaching is just as an important point. It is absolutely useless to teach in any manner using any technique if the teacher cannot get through to the student."

"The second most important thing that I have learned is to shut my mouth once in a while and let the students get a few words in."

"I became a little more consciously aware of the problems of graduate students; not recognizing the student, embarrassing the student, or handling something wrong. I'm more aware of it and as soon as something like that comes up I think back to when we were discussing it."

"The biggest thing I think was the idea of stating objectives and trying to state them clearly and I think this is a really big thing."

"Maybe I just feel more comfortable up there. Maybe my teaching hasn't improved at all but I do feel more comfortable."

"I find myself asking what might I do to change my behavior which will be useful in communicating something to a student, rather than what must be changed in the student to be effective teaching of sociology."

"Personally speaking, the most valuable experience was being able to see myself interacting with students in a classroom situation."

"I think I realize now that appropriate techniques are different for different types of material to be presented."

"I have become so sensitive to my behavior and at the same time I haven't been able to implement as many changes as I would like, in my behavior, and as a result I didn't feel good about how I looked on the tape."

IV. What is your opinion of the video tape recording procedure?

Almost all GTA's stressed the value of the video feedback. However, some indicated that they might have used the VTR procedures more effectively.

<u>Quotations</u>

"I feel that regularly viewing myself in the classroom - improved my teaching technique. I mean this to be a vague, general remark, and I do not intend to substantiate it. I simply feel my classroom performance is smoother, more comfortable, and more effective as a result of observing myself

at regular intervals. Perhaps this is due to the fact that the TV provides such a lively, immediate feedback, while heretofore feedback consisted of blankened rectangles on an end-of-the-term questionnaire."

"After viewing my first tape, I was appalled at how rapidly I spoke, and I couldn't wait for my next class meeting to apologize and promise to reform. As it turned out, none of my students thought I spoke too rapidly."

"The TV tapes of the class sessions were probably the most important aid in the program. Without them it would have been impossible to see how well or poorly various things went off or to detect problems that needed to be worked on."

"The video tapes, I don't know how valuable those were to me. Maybe I just wasn't using them correctly or something; it really got to be a drag."

V. What is your opinion of the debriefings?

The debriefings were conducted in a relatively unstructured manner and the amount of time spent on various topics depended upon the needs and preferences of the GTA. Because of their different personalities and backgrounds, individual reactions to the debriefing procedure varied. All GTA's were positive in their insistence that the debriefing was essential for providing a non-threatening, problem-solving atmosphere. However, some thought they were too highly structured while others thought they lacked direction and tended to wander. Some favored more lectures; others, fewer.

Quotations

"I think the GTA debriefing sessions should be as lecture-free as possible. Perhaps an older, experienced GTA might serve as the on-the-spot leader, gently structuring the discussion. The talk may tend to be a bit too social. Yet, this may not be all bad for new, 'lonely,' GTA's all facing similar teaching (and therefore social) problems for the first time."

"Sometimes a person is not quite as objective about himself as he is with others. Consequently, I believe that seeing the others and discussing the problems with them enabled me to discuss my problems more objectively."

"The first week I came in here I was upset, someone snickered at the fact that I wanted to set up class atmosphere, I lost my perspective. That was a short range thing, that person today turned out to be one of my greatest criticizers in terms of benefit to me."

"I probably like structure too much, but it seemed like we could have been a little more structured and not wander off on things."

"I know you and Dr. _____ don't like to get in there and start lecturing but actually I did learn from them. I think things were said that were to the point and I think it was a good part of the debriefing although I would object to having strictly a lecture."

"Maybe it was because I had a lot of education courses, but lots of times the Friday afternoon debriefings got to be the same sort of educational stuff, jargon and theoretical things concerning education that I'd heard before and never had very much love for."

"I like the idea of the student debriefing. It is as direct as the PCQ, but it gives the student more freedom. What is more important is that its effect on the GTA is more profound."

"Here we spend six weeks discussing all these problems and within an hour these three students had cropped up with all the problems we had discussed and all the possible solutions."

III. What have you learned about yourself as a result of your participation?

The following quotations indicate that some GTA's developed a better understanding of themselves and an increased awareness of the relationship between their personality and their teaching behavior.

Quotations

"I've learned that there are some essential components to effective instruction and to my style. I actually have a style; I've learned that."

"Then the first time someone asks you, 'Why did you do it that way and look at the results you would have gotten?' You either accept this or you become that inflexible person which you stand against in teaching, so there was a benefit. It makes you look at yourself. It makes you realize that you don't know what is best. It keeps you constantly in motion as a teacher and as a person. It should carry over to you as a person."

"There were several points at which I would have to say that I was very discouraged with my teaching ability and if it hadn't been for my feeling that I was at least contributing and getting something out of the training program, the debriefing sessions, I could have been much more discouraged."

"I think my main point here - my main point in this entire section - is that I felt myself to be more ill at ease because of my own perception of my behavior, a conflict between my perceived self and my ideal self, rather than any threat from an outside source."

"I was very self-conscious of myself and one of the main things I noticed about myself was my manner; my voice was too low, my speech tended to be mumbled, indistinct. This really bothered me, it is different to hear yourself talk this way and to have someone occasionally tell you or react by saying that they couldn't understand you because you were too indistinct or talked too softly. I have occasionally found myself comparing myself to others of the trainees, wishing..."

VI. Has your attitude toward teaching changed as a result of your participation?

GTA's attitudes toward teaching changed in several ways: many began to consider college teaching as an acceptable alternative to research; most became more critical of their own teaching and the teaching of the faculty; some changed their perception of the role of the teacher from transmitter of information to facilitator of learning.

Quotations

"Yes, I am more critical of my professors with respect to the way they handle their classes. I am also more critical of my own teaching, yet I am more enthusiastic about teaching."

"I have acquired a great degree of humbleness concerning my skills as a teacher. At one time, as short ago as Winter 1969, I really felt I was quite a 'hot shot' as far as an instructor goes. However now, though I am not dispairing of my abilities by any means, I believe there is a lot more to teaching than I would have ever thought possible."

"I think my attitudes have changed quite a bit. I can remember when I used to think that all I wanted to do was to contribute to my particular area, research wise, and get things published and so on and I really didn't care that much at all about the students."

VII. Should your department adopt this training program?

Although GTA's felt their departments needed this training program and although GTA's said they would actively support its adoption, they were uncertain about the reaction of their peers and the faculty. They doubted that the purpose was appropriate for graduate students with a primary research orientatation.

Table V

Assume that the university is considering whether or not to install a program of the type you have just been through for training graduate teaching assistants. How would you respond to the following questions on a five-point scale? (N = 17)

	Percent Responding		
	SA & A	N	D & SD
1. I would oppose the program.	18	0	82
2. I would try to convince the faculty to support the program.	82	6	12
3. I would try to organize other graduate assistants against the program.	12	0	88
4. I believe faculty in my department would be hard to convince.	35	35	30
5. Graduate students would readily accept the idea if the department did.	35	35	30

Quotations

"It certainly wouldn't hurt them to learn more about the teaching process. The general faculty is there to do research and teaching is secondary. They might think it is a nice idea but I don't think they would go along with it."

"I don't think it would ever hurt to have someone behind it that's in a position of authority that can say, 'Well, this is a good thing' or 'We should adopt this."

"I think there needs to be more of a faculty-graduate student interaction on other planes than course level, it might contribute to that and it might not."

> "I have stated that the department would, with some reluctance, buy the package and then only with the understanding that it would be under their supervision. A few senior faculty who are known for their teaching abilities might convince the department that the program might be effectively used."
>
> "The graduate students are similarly a variable lot. There are some who have to teach next term, or in the near future, and would like very much to be involved. Others feel as though it would be a waste of time and will want nothing to do with such a program."

Attitudes of Students

At the end of the last class meeting of the term, students in the GTAs' classes were asked to complete a questionnaire designed to sample their reactions to the training program. The questions covered student attitudes and perceptions toward five aspects of the program:

1. Physical characteristics of the Experimental Classroom Facility.
2. Obtrusiveness of the observational procedures.
3. General attitudes toward the program.
4. Perceived effects of the program.

Questions relating to each of these aspects of the program have been grouped together and the results are presented in the following table as the percent of students from all classes choosing each category of response. Percentages are based upon a total of from 264 to 279 students. Total responses to all questions are unequal because of omitted answers.

Table VI

STUDENT RATING OF TRAINING PROGRAM

			Percent Responding		
		N	Agree	Neutral	Disagree
A.	Physical Characteristics of ECF				
	1. The classroom is in an inconvenient location.	278	49	23	28
	2. The temperature and ventilation conditions in the Experimental Classroom interfered with my learning.	277	87	15	78
	3. If possible, chairs in the Experimental Classroom should be arranged in a circle.	282	29	31	39
B.	Obtrusiveness of Observational Procedures				
	4. I was annoyed by the microphones and TV cameras in the classroom.	275	23	22	56
	5. The presence of people in the observation room disturbed me.	273	29	12	59
C.	Attitude Toward the Program				
	6. If I could do it over again, I would volunteer to be in an experimental class.	275	40	32	28
	7. Because this was an experimental program, I was expected to do more work here than in the other classes.	268	22	18	60
	8. A training program for graduate teaching assistants is needed at MSU.	268	74	21	5
	9. Because the class was part of an experimental program, I tried to make the instructor look good.	264	5	33	63
D.	Perceived Effect of the Program				
	10. There was a congenial atmosphere in this class.	274	57	26	17
	11. The instructor improved over the term.	276	51	41	8
	12. In comparison to other classes I have been in, I learned more in this one.	279	28	36	36

Note: Number of responses to all questions are unequal because of omitted answers.

Quotations

"I feel another type of program should be devised. The TV camera gives the class and the instructor a certain 'uneasy' and 'unnatural' feeling."

"I think every student should be willing to volunteer for a program for improving teacher instruction, for he is the one who benefits in the long run. P.S. This university certainly could use it!"

"Other than location, I had no gripes about being in the experimental program. Definitly a good idea though, because some teaching graduate assistants are bad. You know, they know the material and are trying to give it to you; but they just don't know how to communicate. That's bad for the graduate assistant and the student."

"I enjoyed it, it's about time the graduate students could get feedback on their work."

"I enjoyed the experimental program mainly because you are not dealt with as if you were part of an experiment! The atmosphere was relaxed and Mr.____'s attitude was friendly and he stimulated class participation."

"I would like to see this type of program in other colleges. Also I think that the students should be given the opportunity to view one or several of the tapes and make verbal comments. This could be more beneficial than the questionnaires."

"Good program if it improves graduate assistants. This instructor was better than some I've had and I think the TV stuff helped."

"Not too bad a program except for location and as long as you fully tell the students the details of the program."

"I thought that as far as classes go, it wasn't that much difference - it was better in the respect that Mr. ____ gets a chance to examine and improve his teaching (I think that is tremendous) but I was not uncomfortable or pressured during class. Part (or most) of the relaxed atmosphere, of course, was due to Mr. ____'s attitude. Overall I thought it was very good, I'm just not sure whether it was the experimental classroom setup or Mr. ____ himself. (Probably the latter!)."

"I found this class to be my only savior in this course. I enjoyed it more than any other recitation class. Mr. ____ is a lot more informed on the subject than my other instructors are. I never noticed the cameras. The one time I watched myself on TV, I think I got a lot out of it. All in all, this was a good idea, too bad the whole course couldn't be more like it."

"I felt this particular class was handled very well. I was totally unaware or conscious of the cameras or the microphones after the first session. If this observance of a class helps in any way to evaluate the teacher, it should be continued."

"I hate questionnaires."

"Part of one of the first tapes should be shown to the class near the first part of the term."

"Just like any other class."

"It took away some time that could have been used for instruction."

DISCUSSION

Although there was wide variation in the amount of knowledge and level of skills possessed by the participants in the training program, they all reported deriving benefit from it. As is usual in such programs, where trainees are responsible for their own learning, the amount of gain often bears a direct relationship to the amount of effort expended. Each GTA tended to improve in those skills on which he chose to practice. However, almost without exception, they all achieved an increased sensitivity to both their own and their students' behavior in the classroom.

Most GTA's showed a willingness to modify their teaching techniques, to experiment and try out new procedures. They reported that by the end of the training program they were not afraid to make mistakes as long as they were able to use the experience for improvement. They demonstrate less defensiveness or rigidity about their teaching behavior and were willing to use the techniques they had learned for analyzing and solving their own instructional problems.

When they entered the program, most GTA's were deficient in three general areas related to teaching competence: command of the subject matter, knowledge of psychological principles and instructional technology, and inter-personal sensitivity and communication skills.

These deficiencies generally resulted in a lack of confidence among GTA's in their ability to teach manifested by rigid classroom behavior and resistance to change.

For example, most GTA's felt considerable discomfiture during any periods of silence in the classroom. Some would prepare detailed notes and stick to them assiduously, paying no attention to the students for fear they might be asked a question they could not answer. Some sat throughout the whole period behind the desk, placing a physical barrier, a lecturn or open attache case, between them and the students.

As GTA's began to acquire background concepts and principles and a modicum of skill, and perceived that they could modify their own behavior through practice, their confidence increased and they were willing to experiment further. This increased flexibility was also reflected in a more congenial atmosphere in the classroom.

The observational procedures used in the experimental classroom were generally unobtrusive both to GTA's and students. In general, students rapidly adapted to observational procedures of this kind and soon failed to notice them. Classes appeared to proceed about as they would have if the camera had not been present.

The opportunity to practice and the objective feedback information provided by the video tape recordings appeared to be necessary for the improvement of performance. However, we concluded that video tape recordings had to be supplemented by debriefings. Without the debriefings, which provided a theoretical context and the opportunity to discuss and analyze their behavior, most GTA's tended to concentrate on relatively trivial physical mannerisms. Our discussions with the participants on this point led to the belief that, without peer group

support, objective evidence of their teaching inadequacies, was too threatening to their self-image to be recognized and accepted.

The group debriefings provide an opportunity for GTA's to analyze their classroom behavior under nonthreatening conditions. However, such conditions occur only after the group has developed an atmosphere of mutual acceptance and trust. The provisions made for tight data security contributed to the development of such an atmosphere.

As they viewed video tape recordings, each GTA perceived that others in the group had problems similar to his and that there were many possible solutions to each problem. They learned that psychological principles could not be applied cookbook fashion; instead they had to be adapted to suit the situation. Each GTA had to develop his own heuristics, or action guidelines.

In the debriefings, the most effective role of the training leader is a passive one; as a learning resource person that can be tapped. This concept is supported by the fact that the GTA's had to experience a behavioral problem and recognize the need for improvement before they would accept authoritative information or suggested solutions.

A variety of impressions emerged from the first year's experience in developing a training program for graduate teaching assistants. These are summarized in the following general principles. Some find support in the data collected; others are hypotheses derived from direct observation of classroom behavior and extensive discussions with the GTA's and their students.

1. <u>Exercise the classroom system as a whole</u>.

The classroom is a social system in which learning is facilitated through effective interaction among the instructor and the students. Ideally, the instructor guides student learning by implementing in a flexible manner a coherent plan of instruction. He must be able to perceive and respond to the immediate behavior of the students and adopt an alternative plan if circumstances warrant.

In order to learn how to behave effectively "on the firing line" instructor and students must practice interacting together. This implies that students, as well as the instructor, must be included in the training program. Students should have complete information about training procedures and operations and should participate actively as a source of feedback.

It is possible that more theoretical information can be imparted to teaching assistants in a separate course or that instructional skills can be practiced under more structured conditions simulating the classroom.

However, effective college classroom instruction involves other factors. One of the most important of these is transfer of training which is a function of the fidelity of the training environment. GTA's must ultimately respond in a complex, interactive classroom environment. Transfer will be facilitated to the extent that the training environment is similar to the classroom. In addition, GTA's tend to reject "methods courses" and other artificial or contrived techniques. These two points together suggest that training procedures should require that GTA's practice teaching their own students in regular classes.

The academic department in which the GTA teaches is another system that must be considered. To be maximally effective, a GTA training program should be embedded in a structured departmental graduate student program. Our experience indicates that GTA's who have taught for at least one term previous to participating in the training program and have had some experience with the course material, develop instructional skills more rapidly. If an academic department institutes a preparation program in which the GTA is exposed to the full responsibilities of an instructor through a series of experiences that increase in difficulty, this training program could be included as an integral part.

In many departments, GTA's appear to face a relatively intense departmental bias against teaching. They are immeshed in the traditional conflict of teaching vs. research. All departments include a considerable number of graduate students whose professional aspirations are to teach at the academic level. Departmental programs should recognize the necessity for developing teaching skills and should provide intrinsic rewards for their attainment.

2. Focus on self-generated goals and self-determined practice.

In general, GTA's participated enthusiastically in the program and thought it was a valuable experience. By creating a situation in which the individual GTA had control of his own learning progress, most GTA's were highly motivated to improve their instructional skills and transfer them to the classroom.

The most efficient strategy for training is for the GTA to adopt a problem-solving approach to the instructional process. Such a strategy does not require the trainee to learn a particular set of teaching methods but, instead, provides him with a conceptual framework and techniques that are generally applicable to any instructional problem he may encounter in the future. These techniques include the ability to recognize and classify instructional problems, the ability to generate hypotheses regarding causal factors, and the ability to test and evaluate these hypotheses in the classroom setting. In this strategy the functions of the training leader in the program are to guide the GTA in the selection of his training goals, and to assist him in analyzing his behavior, and to encourage and reinforce his progress toward goal attainment.

Of equal importance is the resultant change in attitude of GTA's toward their own instruction. Most acquire sufficient competence and confidence to experiment with new procedures. They showed less defensiveness or rigidity about their teaching behavior and were not afraid to make mistakes as long as they were able to use the experience for improvement.

Because of the wide differences in individual experience and skill they bring to the program, a ten-week period may not be long enough for every GTA to significantly modify his behavior. While this period of time is long enough for most to learn to identify and classify instructional problems, organize instructional materials, and develop skill in simple classroom techniques such as the management of verbal and non-verbal reinforcement, it is unlikely that in this short period all GTA's can learn such higher level skills as the ability to switch rapidly from one instructional technique to another in the classroom However, with a problem-solving approach toward the instructional task, and the skills for identifying and solving their instructional problems, they are equipped for further improvement on their own.

3. Maximize objective feedback.

The outcomes of this program support the notion that teaching skills can be improved through practice and feedback. To be maximally effective, the feedback information must be objective and compelling. Video tape recordings of his own as well as student behavior provide the GTA with information by which he can identify his own instructional problems and his progress toward alleviating them. However, GTA's must be trained to seek out, collect, and use feedback information efficiently, whatever the source.

4. Provide the opportunity to analyze feedback in a non-threatening group setting.

Feedback data can be threatening and can paralyze the GTA into inaction. To examine video tapes objectively and to honestly face the problems displayed, is only possible if an atmosphere of trust has been established among participants. Essential to the development of this trust is the guarantee of anonymity.

However, once trust is established among GTA's, the group method encourages creative problem solving. Not only does the group method provide a non-threatening

atmosphere wherein failure is accepted and experimentation is encouraged, it also extends the practice available to each GTA by exposing him vicariously to the experience of others. The GTA becomes aware that his problems are shared by others and that a wide variety of solutions is available.

SUMMARY

The training program described in this report provides the teaching assistant with an opportunity to experiment with alternative instructional techniques so that he may discover those that work best for him and thus develop his own individual style of teaching. It provides him with objective performance feedback and the opportunity to analyze his behavior under non-threatening conditions. It encourages him to take responsibility for his own learning and, by developing a problem-solving approach to instructional processes, enables him to develop sufficient skill to continue improving on his own. Four key principles characterize the procedures ultimately developed.

1. Exercise the classroom system as a whole.
2. Structure a learning environment in which participants can generate their own goals and determine their own conditions of practice.
3. Maximize objective feedback.
4. Provide the opportunity to analyze feedback in a non-threatening group setting.

Such a program meets the expressed needs of graduate teaching assistants in today's colleges and universities and receives their general approval and endorsement.

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